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10/813,067	03/31/2004	Steven T. Fink	244568US6YA	4640

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EXAMINER

SHARP, JEFFREY ANDREW

ART UNIT	PAPER NUMBER
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3677

DATE MAILED: 01/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/813,067	Applicant(s) FINK, STEVEN T.	
	Examiner Jeffrey Sharp	Art Unit 3677	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 3/31/2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-43 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 3/31/2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Status of Claims*

- [1] Claims 1-43 are pending.

### *Claim Rejections - 35 USC § 102*

- [2] The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

- [3] Claims 8, 12, 15, 16, and 20-29 are rejected under 35 U.S.C. 102(b) as being anticipated by David et al.US-6,267,543 or Golden US-1,809,117

See David et al. Figures 1-9. David et al. shows restricting element (140,142).

See Golden Figures 4-6. Golden shows restricting element (21).

### *Claim Rejections - 35 USC § 103*

- [4] The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

[5] Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Golden US-1,809,117 in view of Lynn US-2003/0180556.

Golden (Figures 4-6) teaches a fastening component having a first surface (16,17,18), second surface (bottom of 18), stem (shank 16) with a smaller cross-section than the second surface, and orthogonal locking pin (19). Note that Golden also teaches a plurality of components (7,9,10 in Figure 6) -- each of said components comprising slots, the last component comprising stops (21) to prevent the pin (19) from further rotation thereby preventing the components from separation.

However, Golden fails to disclose expressly a **coating** for the fastening component that is resistant to harsh plasma environments.

Lynn teaches **coating** any component within plasma machinery including nuts, bolts, and pins (paragraph 0011) in order to reduce erosion to the component. From the teachings of Lynn, it would be apparent to one of ordinary skill in the art to use a coating comprising silicon, quartz, ceramic and/or any other suitable insulating material that can withstand the temperatures of a plasma reactor. Lynn specifically mentions anodized aluminum (paragraph 0016).

At the time of invention, it would have been obvious to one of ordinary skill in the art to modify the fastening component taught by Golden, to comprise the plasma-resistant coating suggested by Lynn, in order to protect the fastener from erosion in a harsh plasma environment.

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[6] Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over David et al. US-6,267,543 in view of Lynn US-2003/0180556.

David et al. teach a fastening component having a first surface (1,2), second surface (bottom of 2), stem (shank 3) with a smaller cross-section than the second surface, and orthogonal locking pin (4,5). Note that David et al. also teach a plurality of components (10,11) -- each of said components comprising slots, the last component comprising stops (142,140) to prevent the pin (136) from further rotation thereby preventing the components from separation. David et al. does not limit the use of the fastening component, but rather discloses expressly, that the component may be used in many devices.

However, David et al. fails to disclose expressly a coating for the fastening component that is resistant to harsh plasma environments.

Lynn teaches coating any component within plasma machinery including nuts, bolts, and pins (paragraph 0011) in order to reduce erosion to the component. From the teachings of Lynn, it would be apparent to one of ordinary skill in the art to use a coating comprising silicon, quartz, ceramic and/or any other suitable insulating material that can withstand the temperatures of a plasma reactor (paragraph 0016). Lynn specifically mentions anodized aluminum.

At the time of invention, it would have been obvious to one of ordinary skill in the art to modify the fastening component taught by Golden, to comprise the plasma-resistant coating suggested by Lynn, in order to protect the fastener from erosion in a harsh plasma environment.

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[7] Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over David et al. v. Lynn as discussed above, in even further view of Marty US-2,399,750 and Preziosi US-3,136,017.

David et al. v. Lynn teaches all of the limitations of the instant claim 1, however, fails to disclose expressly the way in which the pin is secured to the stem.

Marty teaches press-fitting the pin (page 2 Col 2 lines 1-2).

Preziosi teaches that providing pins can be done in any desirable fashion (Col 2 lines 7-8).

At the time of invention, it would have been an obvious matter of design choice to one of ordinary skill in the art to modify the pin member taught by David et al., to be integral with the stem in any fashion whether brazing, interference fit, forming, casting, etc. as suggested by the Marty and Preziosi references. Further, it has been held that making two parts unitary is within the general skill of a worker in the art. *In re Larson*, 144 USPQ 347 (CCPA 1965); *In re Lockart*, 90 USPQ 214 (CCPA 1951). It has also been held that the term "integral" is sufficiently broad to embrace constructions united by such means as fastening and welding. *In re Hotte*, 177 USPQ 326, 328 (CCPA 1973).

[8] Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over David et al. or Golden as discussed above, in view of Marty US-2,399,750 and Preziosi US-3,136,017 for the same reasons discussed in the rejection above. See section [7] of this office action.

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[9] Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over David et al. or Golden as discussed above.

David et al. and Golden both disclose stop means (140,142; and 21, respectively), however fail to disclose expressly, a 'pin' as stop means. One of ordinary skill in the art *could* consider the stop means taught by David et al. a 'pin'-type protrusion.

At the time of invention, it would have been an obvious matter of design choice to modify the stop means taught by either David et al. or Golden, by using any 'pin' means to prevent over rotation of the fastening component -- including a roll pin, needle bearing pin, integrally-formed pin, etc., in order to improve the manufacturability of the assembly, and reduce cost.

[10] Claims 9, 10, 11, 18, 19, 30-36, and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over David et al. or Golden as discussed above, in further view of Bowers US-5,795,122 or Csik et al. US-2003/0185653.

David et al. and Golden both disclose the second contacting surface of the stud (i.e., surface that the pin of the stem contacts) to be integrally fixed to the second object, and fail to disclose expressly, a separate second fastening component being an adjustable locking element comprising a helical coil.

Bowers discloses solving the problem of varying object thicknesses by putting the second contacting surface on an adjustable, externally threaded member to be contained within a threaded bore of a second object. From the teachings of Bower, one of ordinary skill in the art would recognize and appreciate the advantages of making the second contact surface infinitely

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adjustable with respect to the second object to eliminate the need for closely matched fasteners.

See Bowers Col 2 lines 5-13, 24-39.

Csik et al. show a second contacting surface communicating with an orthogonally-positioned pin at the end of a stem of a fastening component, said second contacting surface being provided with an external helical thread so as to enable a means for axially adjusting and positioning said second contacting surface to eliminate the need for using differently-sized fastening components for a given range of thicknesses for the second object.

At the time of invention, it would have been obvious to one of ordinary skill in the art, to modify the second contacting surface taught by either David et al. or Golden, to comprise the external thread-gripping means (i.e., 'locking element') as suggested by either Bowers or Csik et al., in order to provide means for adjustment -- said means allowing for a standard size stem (of a fastening component) to be used to fasten second objects of various thicknesses.

As for the limitations in claims 30-36, the method steps are inherent from the disclosures of the aforecited references, as would be recognized by those of ordinary skill in the art.

As for claim 41, the elastic element (David et al. spring 120) is shown between the first fastening component and first object. Spring steel may be electrically conductive as seen in battery terminals.

[11] Claims 37-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over David et al. v. Bowers as discussed above in section [10] of this office action, in even further view of Lynn US-2003/0180556.



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David et al v. Bowers teaches all of the limitations of the instant claim 30; however, David et al v. Bowers fails to disclose expressly, a plasma-resistant coating on the fastening component.

As mentioned in section [6] of this office action, Lynn suggests a plasma-resistant coating for components within plasma reactor equipment and the like.

At the time of invention, it would have been obvious to one having ordinary skill in the art, to modify the fastening component and apparatus taught by David et al v. Bowers, to comprise a plasma-resistant coating when used in plasma equipment as suggested by Lynn. David et al. do not limit the application in which the fastening component may be used. Further, Lynn suggests a coating comprising silicon, quartz, and any other suitable insulator that can sustain the high temperatures associated with plasma equipment. See Lynn paragraphs 0011 and 0016.

[12] Claims 40 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over David et al. v. Bowers as discussed above in section [10] of this office action, in even further view of Ellis US-3,460,210.

Ellis suggests placing an elastic element (13) between the first and second objects as equivalent means to bias the objects away from each other (whereas David et al. show an elastic element between the first fastening component and first object), so as to tension the stem of the fastening component and secure the two objects together.

At the time of invention, it would have been an obvious matter of design choice to one having ordinary skill in the art, to move the biasing elastic element taught by David et al.

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between the two objects (instead of between the first fastening component and first object), as suggested by Ellis, in order to provide alternative means for biasing the assembly so as to tension the stem of the first fastening component. See 'rearrangement of parts' in MPEP 2144.04.

As for claim 43, spring steel may be electrically conductive as seen in battery terminals.

[13] Claims 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over David et al. v. Bowers as discussed above in section [10] of this office action, in even further view of Young US-2,119,764.

Young suggests placing an elastic element (12) between the second contacting surface, and an object as an alternative to placing the elastic element between a first fastening component and first object as shown by David et al.

At the time of invention, it would have been an obvious matter of design choice to one having ordinary skill in the art, to move the biasing elastic element taught by David et al. between the second contacting surface and a second object (instead of between the first fastening component and first object), as suggested by Young, in order to provide alternative means for biasing the assembly so as to tension the stem of the first fastening component. See 'rearrangement of parts' in MPEP 2144.04.

Note that one of ordinary skill in the art would appreciate that the elastic element could be placed at any place between the pin and bottom of the head of the first fastening component to achieve the same general function.

### ***Conclusion***

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[14] The prior art made of record and not relied upon is considered pertinent to applicant's disclosure is as follows:

US-4,827,609 to Kawecky teaches using a recess, counter bore, or countersink (45) to resist lateral movement of a stem and fastener component within an aperture (2). See Col 5 lines 15-16. Examiner takes official notice that counter bores are preferred and commonly seen in machining equipment, to allow flush mounting of objects on top. See also, US-2,378,122 to Barlow, which shows a counter bore for flush mounting a similar fastener component.

US-6,338,649 teaches a similar fastening component using an electrically conductive elastic element (37).

US-1,449,997 Hines teaches adjustable 'take-up' means using a helical coil.

US-5,897,278 Frattarola teaches a similar fastening component.

US-1,895,826 Trudeau teaches a similar fastening component.

US-2,260,048 Newell teaches a similar fastening component.

US-2004/0185279 Fink (Applicant) teaches coating a fastener for resistance to plasma exposure.

US-2004/0033385 Kaushal et al. teach erosion-resistant components in plasma process chambers.

US-2,620,539

US-2,749,789

US-4,657,462

US-4,293,984

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US-3,816,882


<http://www.plasmapros.com/thermal-protection.htm> teaches polyimide as a common insulative coating.

**[15]** Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey Sharp whose telephone number is (703) 305-0426. The examiner can normally be reached on 7:30 am - 5:00 pm Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, J.J. Swann can be reached on (703) 306-4115. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JAS

  
**ROBERT J. SANDY**  
PRIMARY EXAMINER